Midnight Thoughts

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I was born into a Jewish family, and I try to preserve what little of Jewishness and tradition that survived the years of the cannibalistic Soviet regime. I was raised in Russian culture, and many of my basic life instincts are distinctly Russian. Since 1990 I reside in the United States. I became a part of this great country. I respect Americans for dynamism, their thurst for inoovation, the way they value every human life and open their society to newcomers. I spend much time in Europe. My mentality is largely European.

So, who am I?

I think I am cosmopolitan, in the best sense of this word.

These notes are not intended for publication. I write this for myself. Well ... perhaps that's not quite true. If I ever have grandchildren, deep in my heart I hope that they might want to learn about their roots. But this possibility seems so remote now (January 2003) that I should hardly take it into account. I will proceed assuming that these notes are for my eyes only. As time passes, memories tend to fade away. Some stay, however, stuck in the mind, clear and colorful, as if it happened yesterday. Sometimes these are memories of painful events in my life, or of its defining moments. On the other hand, many insignificant events which do not seem to be important at all, left deep traces in the memory too... I will not try to sort things out.

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At first I wanted to call these notes "From Moscow to Minnesota via Jerusalem." This would emphasize that I consider myself belonging to three cultures. I was raised in Moscow, in a typical circle of Russian *intelligentsya*. I spent the last 13 years of my life in the US and got to love many sides of the American lifestyle. Finally, my Jewish heritage is very important to me too... Later I changed my mind. "Midnight thoughts" is shorter, and better reflects the character of these notes. These are thoughts that come to my mind during long sleepless nights... Usually I let them go, but some are so obsessive that I have to write them down later in the morning just to get rid of them.

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Some cities have an aura. Even those who have never been to Moscow and New York know about Arbat and Lyubynka, or Central Park and Broadway. Les Champes Elisée, Jardin Luxembourg and Mount Scopus ... a sweet melody for so many,... who have never set their foot on the soil of Paris and Jerusalem. A song composed by generations of poets and writers who lived in Moscow, New York, Paris and Jerusalem. They created the cultures of their respective nations which fused and became the world culture.

The poets, writers and artists made known to everybody beatiful palaces and artistic treasures. Le Louvre... Hermitage... Historic events that shaped the world took place in these cities. They are in every history textbook.

I want to say a few flattering words about Plymouth, Minnesota. That's a small town where I live. It has neither royal places nor magnificent momuments. There are no famous museums and the like. There was one monument, though, of a cow. It was put by a local farmer next to the entrance to his farm. It was simple, I would say even primitive. Its only task was to attract customers who were supposed to buy beafsteaks from the farmer. However, a couple of years ago the farm was bought by a real estate developer, and the cow monument — the only one in town — disappeared.

Knowbody besides several dozen thousand inhabitants of Plymouth knows about the French Park, or Rosewood Lane, or, as a matter of fact, any other lane or street. And justly so. They look the same as thousands of other streets in thousands of other small cities in the US. Spacious and comfortable houses, a typical family dwelling, are not built to last for centuries. They are built of wood, and who knows what happens in 50 years? Will these houses last? And whether the entire city will be still where it is now? Who knows...

So, why should I bother telling about Plymouth? Because this is the place where glory and power of the American civilization are being created. Young profesional families come here (and in thousands similar small towns) to settle and raise their children. They are programmers and engineers, software developers and scientists. Their programs run the world. They weave the internet web, found innumerable high-tech companies. They make discoveries and inventions. In short, they create the wealth of the worldand shape its future.

They come from all over the world — Russia, China, India and Korea— of all races and religions. Protestants and Catholics, Jews and Muslims, white and black — for all there is a place, a comfortable house and a nice green lawn in our Plymouth. People make friends quickly, and neighbors are friendly... When I get up in the morning I hear birds singing. The air is fresh.

Yes, this town has no history. So what? Is it so bad that it has never seen wars, human misery, outbursts of hatred... Is it so bad that nothing of this kind happened here, so there is nothing special one might write of in books?...

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When my grandparents were alive they used to tell me stories about their childhood, their parents and life in small *stetele* that ceased to exist long ago. Unfortunately I did not want to listen. Their reminiscences seemed so sur-real in my universe... as if they came from another planet. When I got more interested, it was too late...

Still I will try to collect what I remember. First, from my father's side. The name Shifman is of the German origin (the correct spelling in German would be Schiffmann). This means that at a certain point in history my ancestors passed through Germany. I do not know when and for how long they stayed there. Neither do I know when they migrated eastward, to Poland and to what later became Byelorussia. They settled in a small ancient Slavic town Turov (which eventually became a typical Jewish *stetl*) before the 19-th century. The first family recollections date back to approximately 1820 when an *Aizik Shifman* was born in Turov. Presumably he died in the very end of the 19-th century. He was a pious Jew, was married and had several children — one of them was his son Itzko (appr. 1843–1905). Itzko had a small live stock business, he got married in due time, his wife's name was Sheva. Sheva gave birth to several children. Of three — a son and two daughters — we know for certain since they gave rise to three (unequal) now existing branches of the Shifman family tree.

Itzko's son who turned out to be the founder of the largest branch was called Moishe-Velvl. He was born in Turov in 1865. In 1893 (very late by the Jewish standards of the time) he married an orphan girl Manya Novak from a nearby *stetl* David-Gorodok. Apparently he inherited father's business (perhaps, a part of it), and expanded it. In addition, he owned a tannery and traded in leather. The family was well off by the Turov standards, they owned a house on the Pripyat river bank, in the central part of the town.

Moishe-Velvl was proud of his business successes; they turned into a grave problem overnight, however, after Bolsheviks seized power in 1917. As a "bourgeois element" Moishe-Velvl was persecuted, and eventually he had to give up all his property and flee from Turov. This happened in 1927. At that time communists entertained themselves with the idea

that they would "convert Jews into honest farmers." To this end a few Jewish *kolkhozes* (agricultural communes) were organized in Crimea, near Evpatoria. Moishe-Velvl and his wife Manya joined one of them, named after Molotov (the same infamous Molotov who later signed the notorious pact with the Nazi Germany).

Moishe-Velvl and Manya had ten children — six sons and four daughters — of whom I will mention two: Aizik (who became my grandfather and whom I remember very well) and Oscar (who, apparently, was the smartest; a couple of years after the advent of Bolsheviks he illegally crossed the Polish border which at that time was still semi-porous, and shortly after left the Old World; eventually he surfaced in Canada and ended up in California.)

During 10 years or so spent in the Crimea *kolkhoz* Moishe-Velvl and Manya built a house with their own hands. By the end of 1930's, however, Bolshevik's flirtation with the idea of "honest Jewish farmers" ended. "These damn Jews, — said they — again they outwitted everybody and got the best piece of land in the country... Besides, instead of cultivating corn, they cultivate bourgeois nationalism!"

So, *kolkhoznik* activists were arrested and sent to Siberia, apparantly, to cultivate corn on permafrost, others were dispersed. Moishe-Velvl returned to Turov, just for a couple of years. In June 1941 World War II came to the Soviet soil. Turov was occupied in a few weeks after the Nazi invasion. In July 1941 Moishe-Velvl realized it was time to flee. He left Turov on foot, under heavy German bombardment.

Thus, Moishe-Velvl and Manya escaped Germans; the misery of war still caught them shortly: they died a year later in evacuation, from malaria and dysentery they got *en rout*. This happened in a little village near Baku, in Azerbaijan. A tiny local Jewish community took care of their proper burial.

The fate of the part of the extended family (Turov was full of Shifmans) that decided to stay was tragic. It is hard to say why they did not try to flee. Probably, they did not believe rumors of the Nazi atrocities ... or, perhaps, thought that they would not survive in such a journey anyway. This part of the family vanished without a trace. Non-Jewish neighbors who survived the war told that Germans had burnt them alive

in their houses, men and women, old people, children and babies alike.

A few words about my grandfather, Aizik Shifman, the second son of Moishe-Velvl and Manya. He was born in Turov in 1900 where he got a traditional (elementary) Jewish education in *heder*. As a young man he tried many professions, worked at a tannery, traded in leather. My first recollections of him date back to the 1950's. At that time he lived in Pinsk, in a small wooden house, and worked as a butcher. I still vaguely remember this house, it was primitive by modern standards, with no running water or toilet inside. But it was clean and cozy. There was a big stove in the kitchen, and a pile of wood nearby, to burn it in this stove. I vaguely remember a little shop on the central (market) square of Pinsk of which my grandfather Aizik was the absolute monarch and the only subject.

So, I am not of noble blood ... My second grandfather was a tailor. But they were good people, their life values were noble, although probably they did not think of that at all.

My grandfather Aizik looked like my father, or like me, but was shorter. I am not tall, but he was much shorter. His wife's name (my grandmother's) was Golda. They made it sound less Jewish (apparently, not to irritate neighbors) by "russifying" it transforming into Galya. By that time they were already empty-nesters: all three daughters and my father, their only son, had their own families and lived elswhere.

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In 1997 I was in England and saw the original of Magna Carta (one of only three surviving originals), that is being kept in the Lincoln Castle from 1215. This was the first declaration of Human Rights that was ever written and sealed by a European king after Dark Ages. For the first time in the world history it was acknowledged that the law is above everybody; the royal family is subject to the same law as the poorest farmer, and there are certain rights the human beings possess not because somebody gives these rights to them, but just because they are born human. I think this is not accidental this idea emerged in England – not in Italy or France (I do not speak about Russia; what was it there in 1215? what kind of rule and law?).

There are some rather funny articles in Magna Carta. For instance,

I grasped one: "No widow should be forced to remarry after the death of her husband, if she does not desire to do so." Still even funnier: "No man should be forced to be engaged in building bridges without proper payment." Some articles were anti-Semitic, reflecting the financial realities of the English society of the thirteenth century. These articles deal with debt repayments to money-lenders (who are generically referred to as Jews in Magna Carta) in case head of the family dies before the debt is fully repaid. Basically, the heirs were released from further obligations, an obvious grave injustice towards their creditors. It is curious that Magna Carta does not mention what is to be done in this case if the creditors were non-Jewish. Or non-Jewish money-lenders were simply non-existent in England in the thirteenth century?

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My first bright childhood memories refer to the beginning of 1953. This was shortly before or just after Stalin's death. I was four years old. I used to play in a large court surrounded by half-dozen so-called houses which I will describe later. There were several children of approximately the same age, mostly boys. I assume that we managed quite well in our childish games. I remember that I liked outdoors; to play with them was very engaging: we imagined ourselves treasure hunters, or noble pirates, or, most often, "reds" (i.e. the Red Army) inflicting excruciating defeats on the "whites" (i.e. the White Guard). In fact, it was very easy to defeat the whites. Nobody wanted to play their role, and it was usually relegated to a couple of weakest and most despised members of our little gang.

At that time, however – the winter of 1953 – the air was different. My fellow playmates were teasing me in various ways, a constant theme being that I was not Russian. I did not know what this exactly meant but I gathered this was real bad, since they no longer wanted to play with me. So, I denied it vehemently. I said, no, you are wrong, I am Russian. – "What about your grandparents?" one of the boys asked. – "They are Russian, too." – "Why don't they speak Russian then?" This was a killer argument since, even at the age of four, I understood that there was a clear-cut difference between the language spoken by my gradma and grandpa when they thought nobody could hear them,

and the language spoken by everybody else in our court. I remember that I tried to invent a scientific explanation, like that my grandparents spoke very fast so that nobody could understand what they were talking about. This did not sound very convinicing even to myself, but I badly wanted it to be convincing, since I badly wanted to be readmitted back in the everyday routine of my peers, as equal. Which meant, that I had to be exactly like them.

My grandparents spoke Yiddish. Neither they nor my parents told me that I was Jewish. The Jewishness of our family was a tabu topic in my presence. Apparently, this was a deliberate decision on the side of my parents. They were scared to death by the events that unfolded in this winter. Remember, this was 1953, the culmination of the "Killer Doctors' Conspiracy." My parents wanted to protect me. In hindsight, I understand that that was a wrong desision. Instead of protecting, they left me completely unprepared and, thus, especially vulnerable. I had to face the consequences of this vulnerabilty in the years to come. Of course, at that time I knew nothing about what was going on in the country. From fragments of conversations in the family I overheard, and mostly from their tone – almost always a low wisper – I gathered that something was frightening and gloomy in the outside world, and it was especially wrong (perhaps, even shameful) not to be like everybody else, to be non-Russian.

We were a large family. The house we occupied at the outskirts of Moscow could be hardly called a house in the strict sense of this word. It was a former pigsty which my grandfather bought in the 1930's when he came to Moscow fleeing from Siberia when the wave of persecution of the "bourgeois elements" reached it. He was a tailor, which was more than enough to entail the gravest consequences. In fact, that was his second flight. This is a different story, however; perhaps, I will return to it later.

My grandparents fixed the pigsty themselves; they cleaned and painted it and divided into small cells which were called rooms, each of about 100 square ft or less. One of these rooms belonged to my parents and me; when my sister was born in 1955 a cradle was added. We – four of us – had to share this tiny "room" for the next two or three

years. I remember this very clearly.

Another similar room was occupied by my uncle and his family which was constantly changing because he changed wives several times. One of his wives had her own daughter, and she lived in this house too until the subsequent uncle's divorce. The room occupied by my grandparents was a little larger, but it served as their bedroom and common dining room simultaneously. In this room my grandfather also received his "clients," neighbors and acquaintances who needed to fix their trousers, patch coats, or cut out small ones, for their kids, from the remains of their own. In this way my grandpa could make a few extra roubles. This was an illegal and risky enterprise. To avoid the past mistake and prevent possible accusations of a connection with the "bourgeois class" he got a full-time job at a factory. The clients had to come secretly on Sundays pretending they were guests. Needless to say that our house had neither running water, not bathroom or inside toilet.

In 1956 I went to school. I changed several. Each time the change was due to an improvement in our living conditions; and each subsequent school was better than the previous one. The last one was especially good. We had a fantastic math teacher there, Valentina Aleksandrovna (unfortunately, I do not remember her family name). Although then she seemed to me very old, she was probably in her late forties or early fifties. She was a genuine enthusiast of mathematics and a connoisseur of its beauty. Her attitude was truly passionate. This was obvious from the way she explained to us the issues in the curriculum, and from the extra-curriculum problems with which she supplied us in abundancy, usually problems from planar or spatial geometry, with highly nontrivial but always elegant solutions. Sometimes these were algebraic problems, but geometry was her favorite. It was she who infected me with this passion. Now, fourty years later, I'd like to say thank you.

I dreamt of becoming a mathematician for several years and changed my mind only later, for reasons of which I will say later. Another engaging activity in our school routine were our English lessons, 45 minutes a day, 6 days a week. Besides learning language, we had to study British literature, starting from Beowulf, through Shakespear, and

ending up with Bernard Shaw. Mostly, they acquainted us with Russian translations, but sometimes we had to deal with the original fragments. Apparently, everything which was after Bernard Shaw was considered to be too dangerous for our minds. We also studied British geography, history, lots of stuff about London, etc. London was a favorite theme; we had to memorize numerous "topics" on Nelson Column, Trafalgar Square, Big Ben, the Thames, Westminster Abbey, British Museum, and all other tourist attractions. When I first came to London several years ago, all these topics suddenly surfaced in my mind very clearly – obviously, they were imprinted there for life.

By way, about Bernard Shaw. His "Pigmalion" (which I first read at school, in English) became one of the highlights of my life. In 1970 I saw the famous movie, with Audry Hepburn starring. I felt awe – so strong an impression it produced on me. It was definitely the best thing I had ever seen on the screen before.

As any normal boy, at the age of 14 or so I became interested in girls. Unfortunately, I did not belong to the elite club of "popular boys." One girl whom I liked and whose attention I wanted to attract felt sorry for me and explained that I had no chances – either with her or with anybody else – since I was not tall, couldn't play guitar, was rather clumsy and shy. "Of course," she added, "had you blue jeans, this might have changed everything..."

This was a clue and a ray of hope. I certainly knew that blue jeans were not sold in Soviet stores, but some lucky guys still had them. So, I went home and undertook a cautious reconnaissance with my parents. Blue jeans trickled in from the West, and could be bought on the black market. The price was roughly equal to my mom's monthly salary; she was just a regular medical doctor and had no sources of income other than the state-mandated salary. After learning this, I did not have guts to ask. Good bye my love, good bye... By the time I could finally afford a pair of blue jeans, I was no more interested in dating – I was happily married, with two children.

I married a girl whom I knew for years, we were at one and the same high school, although she was two years younger. When I entered the University, as a token of appreciation to my high school teachers, I

organized there a small study group, for in-depth studies of physics, on a volunteer basis. This endeavor lasted for about a year, with five or six pupils attending, and she was one of them. Certainly, at those days I did not pay much attention to her – no romantic thoughts were crossing my mind when I was explaining the subtleties of Maxwell's laws at the blackboard. I singled her out, however, because her eyes were lighted up from inside, an inner glow.

Our paths crossed again, several years later, when I was approaching my Master's. We accidentally met at a chaotic party, with lots of young people, lots of wine, loud music, everybody was shouting and nobody could hear even his or her nearest neighbor, let alone others. By that time physics was long forgotten (on her side). When I entered the room, she was dancing on the table, and I fell in love instantly.

In a year or so we decided to get married. Rita (that was her name) made up her mind to take my family name, which is distinctively Jewish, for the Russian ear; it "betrays" me right away. For the modern reader this fact may seem trivial. I mention it because in the Soviet Union of the 1970's this was kind of a heroic deed. Rita was non-Jewish, her maiden name was Ukranian; by taking mine she deliberately barred herself from virtually all lucrative careers.

But let me return, however, to my last years at high school. This was the time of the first thawn. Everything was simmering in the outside world. Khrushchev exposed the ugliest crimes of Stalinism, many *gulag* camps were shut down, and millions of innocent people set free. The revolution in minds was spearheaded by several dozen young poets and writers, the best part of the Russian *intelligentsia*. They became the idols of the society, its informal leaders. I do not think that ever before a few intellectuals and people of arts have had such a strong impact on the entire nation. They were like biblical prophets. Crowds of people eager to catch up with the rest of the world stormed arts exhibitions, theatrical performances, and literary events which were percieved as revellations. The air of freedom made people euphoric. The jinnee was let out of the bottle.

This does not mean, of course, that the pressure of the previous years vanished without a trace overnight. I remember that shortly af-

ter the first novel of Solzhenitsyn, *One Day of Ivan Denisovich* was published in a popular magazine *Roman-Gazeta*, my father discussed it with a relative, in wisper; they first made sure that nobody could hear them. My mom asked me never to mention Solzhenitsyn at school. She reminded me of the story of which I had heard from her several times before. When she was a schoolgirl, in the late 1930's, a classmate of hers, with whom she shared a desk, said in the literature class that she did not like Gorky's prose. Gorky was officially proclaimed by Stalin to be the father of the Soviet literature. The next day the classmate disappered. Later my mom learned that the girl was arrested and sent to camp, from which she never returned.

In 1965 *The Feynman Lectures on Physics* were issued in the Russian translation. In the Russian edition the *Lectures* were serialized in 10 volumes, roughly one volume each two or three months. To me these books were high poetry. The pleasure from reading them was so intense, that I wanted this publication never to end. Feynman became my personal role model, for life. His lecture course was instrumental in my decision not to pursue carier in mathematics, but rather, to become a physicist. Of course, there was much more to that. Nuclear physics was romanticized in the Soviet literature and art. Just about this time a famous movie was shot, *Nine Days of one Year*, with Batalov starring. The main character was a nuclear physicist who sacrificed himself to ensure the success of the project he had been working on. Being exposed to a deadly dose of radiation, he dies at the end of the movie. Of couse, at that time I did not know what was behind the scene. The Soviet authorities encouraged such productions since they needed people to advance the H bomb and other high-tech military projects. Remember, this was the peak of the cold war, well before Andrei Sakharov became a dissident. I first heard of Sakharov's name only several years later.

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Once I started Feynman's theme, it's worth telling of an episode related to this theme which happened many years later. In 1985 a friend of mine gave me a wonderful gift, a photocopy of Feynman's book *"Surely You're Joking, Mr. Feynman."* I swallowed it overnight. It was so fascinating that it was absolutely impossible to keep it all

to myself. I badly wanted to share my fascination with others. Upon reflection, I understood that the only way was to translate it in Russian and try to publish the translation.

I called Rudolf Svoren who was in charge of one of the departments in the popular magazine *Nauka i Zhizn* (*Science and Life*), whom I occasionally dealt with previously. From time to time he would provide me with small writing jobs, so I could make extra 20 or 30 roubles, to make ends meet. In those days this magazine had 3 million plus circulation. Now it is almost extinct; meagre 30 thousand is all free Russia can afford.

Svoren met the idea with enthusiasm and was very supportive. He told me that I could go ahead and translate from a third to a half of Feynman's book, at my choice. He would push it through the board and take care of the copyright issues. – "Just make sure you stay away from chapters with political connotations, and passages where he might mention our spy at Los Alamos," he added. "Focus on science."

I worked for a month or so, and came up with over 120 pages. In a few days Svoren called me and said: – "Are you crazy?" – "What happened?" – "In your translation I found at least three paragraphs where he mentions he is Jewish. The board will never authorize this material for print. Cut them out!" My cautious attempts to object that this was nonpolitical were met by an icy shower: –"This *is* political. Just do what I am telling you, or say farewell to the project."

With heavy heart I had to comply. I felt uneasy, though, and (after the first chapters appeared in print) decided to write a letter of apology to Feynman explaining to him the situation. Here is an excerpt from this letter:[a]

"Dear Prof. Feynman,

I am happy to send you the Russian translation of selected chapters from your book *"Surely You're Joking, Mr. Feynman*," to be serialized in the popular monthly magazine *Nauka i Zhizn*. The publication is scheduled to continue through 1988, and I hope to send you the printed copies as soon as they become available.

[a] Unfortunately, a draft copy I have at my disposal is not dated; apparently this was in 1986.

In doing the translation I tried to keep your wonderful style and very peculiar language, which was not easy because of the requirements of the Editorial Board. For the same reason I had to omit from the Russian translation the parts where your Jewish origin was referred to. I bring my apologies..."

Needless to say there was no chance I could send this letter officially, through my institute. Therefore, in violation of all instructions, I just put the envelope in a regular mailbox. More exactly, I made two slightly different copies, one of them less explicit, in the hope that at least one of the packages would reach the addressee. I sent them off with a gap of a few days.

In 1996 I was on subbatical at CERN. Somebody introduced me to Glen Cowan. In the mid 1980's he was at Caltech; he and Ralph Leighton were Feynman's friends; both are repeatedly mentioned in *"Surely You're Joking, Mr. Feynman*," and its sequel *"What Do you Care What Other People Think?"*.

Glen told me that one of my packages (I do not know which one) was received, they read the letter with Feynman and Leighton and discussed it. Glen's Russian was (and still is) excellent, he picked several passages and made a reverse translation from Russin into English, and they laughed at it. Feynman was already terminally ill. Maybe for this reason, may be for another, I got no response. I did not expect a response, though. After Feynman's death in 1988 Dr. Cowan moved to Switzerland and then to England; now he has a permanent position at Royal Holloway College, University of London. As for Rudolf Svoren, we will encounter him again on these pages; he emigrated to the United States and lives in Boston.

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Back to 1965. Above I wrote that Feynman's lectures made me switch my interests from primarily mathematics to primarily physics. This was an aesthetical motivation. To be honest, there was another crucial impetus in the same direction. At about this time one of my teachers introduced me to a guy who graduated from the same school as I[b] 4 or 5 years before me. His name was Petya Gusyatnikov, he was

[b]Special School # 9 of the Timiryazev District.

a student of Moscow Institute for Physics and Technology (Fiztech). Petya gave us several lectures on special topics in math. Apparently, he singled me out and sort of liked me. After one of these lectures—this was late evening, I vividly remember that the school corridors were empty—he started a cautious conversation about my future plans. I told him I was unsure which carier to pursue.

– "Mathematics is not for you," he said sternly, "forget about Mekh-Mat MGU [c] once and forever!"

Petya was the first to open my eyes on what everybody knew but nobody wanted to tell me. He said approximately the following: – " Look, I do not know why, but this is a well-known fact—the Soviet mathematical community, which gave to the world some of the most outstanding mathematicians, is also pathologically anti-Semitic. Such great mathematicians as Pontryagin and Vinogradov, who accumulated enormous administrative powers in their hands, are ferocious anti-Semites. They cut off Jewish applicants. At the entrance examinations they arrange special groups of "undesirable applicants." Then they offer them killer problems which *nobody* can solve.[d] The problems are from mathematical competitions; sometimes, they are flawed, or even completely wrong. There are ups and downs on the road to "cleansing" of math departments and keeping them "Juden-frei," but their ideal goal is always the same. Mekh-Mat is their headquarters."

I was so stunned by this revelation, that I got mute, and could not even say thank you for the advise. Then I lost Petya for 35 years, our paths never crossed again. Only recently it turned out we had a common friend, and when this friend visited Minneapolis, he brought me regards from Petya who is now a Professor of Mathematics at Fiztech. With the delay of 35 years I would like to say thank you. Better later than never ....

It is interesting that in the above conversation the words "Jew" or "Jewish" were never spelled out. Although in the literary Russian language they are as neutral as, say, "Brittish," in the colloquial So-

[c] Department of Mechanics and Mathematics of the Moscow State University.

[d] An extremely illuminating analysis of such killer problems which had been collected by A. Shen was published by Ialn Vardi.

viet newspeak these words acquired strong negative connotations. To say "Jewish" would be similar to saying "nigger" in the United States. People tried to avoid this by using euphemisms. Most common was referring to the "fifth point." Every Soviet citizen had to have an internal passport. The fifth entry on the first page would state his or her "nationality" which meant, in fact, ethnic origin. The Jewishnes was derived not from the religion but basing on blood lineage, as in the Nazi Germany. So, instead of saying "he is Jewish," people who tried to be polite would say "he has the fifth point."

It was Petya Gusyatnikov who told me that at that time Fiztech had a more liberal admission policy, and I should orient myself in that direction. Everybody in the West knows MIT or Caltech. So much was written about these institutions by their famous alumni. Science and education-wise Fiztech was no less glorious a place than MIT or Caltech. It is virtually unknown in the West, however (for good reasons, of which I will say later). So, a few words about Fiztech are in order here.

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Fiztech was created in 1946 as a result of an effort of a group of concerned physicists spearheaded by Pyotr Kapitsa. In 1945 he wrote a letter and a subsequent proposal to the Soviet goverment regarding "organization of the Moscow Institute for Physics and Technology." In the preamble Kapitsa wrote that the experiences of the Second World War totally changed the role of science. Science bacame a national security issue, of the same importance as the army or the industry. The scientific research of an appropriate scale could not be implemented without mass production of research personel. At the same time, the traditional Soviet system in which the university education was divorced from advanced research (conducted, almost exclusively, in special research institutions) could not cope with the situation. The needs of the military were too high, the demand could not be met.

Stalin's reaction was positive. In a few months a special decree of the Council of People's Comissars formalized the creation of Fiztech on the following principles: (i) The student body was to be selected from the most gifted and talented applicants from all over the country; (ii) The teachers and professors were to be recruited from the most active

researchers in the advanced areas of fundamnental physics and technology; (iii) Educational process was to be based on individual methods adjusted to the needs of particular students, in conjunction with the solid experimental base provided by the best research centers (the so-called base institutions).

As Yuri Orlov later put it, this was a pact betwen scientists and the devil. Stalin wanted it for the sake of success of his far-reaching plans of the world domination for which he needed nuclear bombs, rockets and other military technologies, and scientists wanted for the sake of advancing science itself. At that time most of them were untroubled by the idea of working for the military-industrial complex of the evil empire. In fact, almost 20 years elapsed before the most conscious of them, such as Academician Sakharov, realized that that was the evil empire. They say that in the 1940's the attitude was totally different.

An appropriate place for the Fiztech campus was found in a small town, Dolgoprudny, about 20 miles to the north-west of Moscow. In the 1930's the town hosted one of the emerging Soviet centers of dirigible-building which employed, in particular, the world-famous Swedish dirigible constructor and pilot U. Nobile. When it became clear that the dirigibles were not going to deliver and were doomed to be bypassed by airplanes, the center was abandoned, before it was completed. In 1946 work there was resumed; by 1947 the German POW's finished several student dormitories and laboratory buidings. When I came to Fiztech in 1966, the campus presented a rather strange collection of grim delapidated buildings, the remnants from the 1930's, and newer constructions, in a somewhat better shape, albeit as cheerless architecturally as the older ones.

At first Fiztech was a department of Moscow University; in 1951 they split. The first lecture courses were delivered by Kapitsa, Landau, Lifshitz, Delone, Petrovskii, Sedov, Sobolev and other outstanding scholars. The Landau-Kapitsa course of general physics was kind of a joint venture; it was supposed to be taken by all students. Landau was responsible for the theoretical part, and Kapitsa for experimental. In alumni's folklore there is a funny story attached to it.

Since both Landau and Kapitsa were suspected in political disloy-

alty, notes of their lectures were taken not only by students. In parallel, the same job was done by professionals from KGB. They turned out to be so skillful that their notes were in fact a manuscript ready for publication. In this way Landau's part of the course was published almost immediately. Although it was a limited circulation edition which was never intended for sale, several generations of Fiztech students benefitted from the book. It was available from the library. This is a rare (perhaps, an exceptional) example when something good came out of the KGB activities. Apparently, the KGB experts did not like Kapitsa's presentation of experimental physics. His part of the course never appeared in print.

An idea of the "Fiztech system" can be inferred from a list of courses the students were supposed to take. I give my list below.

Mathematics: Mathematical analysis I, II, and III, analytical geometry, matrix and tensor analyses, theory of functions of complex variables, differential equations, equations of mathematical physics, special and generalized functions, analytical mechanics, differential geometry, numerical methods; General physics: mechanics, thermodynamics, electricity and magnetism, optics, nuclear physics, quantum mechanics, experimental methods; Theoretical physics: mechanics, classical field theory, statistical physics and thermodynamics, quantum mechanics, solid state physics, general relativity, quantum field theory; Special courses: theory of elasticity, theory of continuous media, gas and fluid dynamics, experimental methods of nuclear and high-energy physics, theory of probabilities and data analysis, advanced quantum mechanics (scattering theory), methods of particle acceleration, radiophysics, theoretical nuclear physics, quantum electrodynamics, theory of strong interactions, theory of weak interactions, high-energy physics; Additional courses: chemistry (nonorganic and organic), technical drawing, laboratory works in physics, chemistry, radiotechnical methods, elements of programming, English, French. Social sciences: history of the Communist Party of the Soviet Union, Marxist-Leninist philosophy, scientific communism (*sic*).

This list is incomplete. It does not include some special courses which I took at a "base institute" associated with Fiztech to which I was

assigned before I came to the Institute of Theoretical and Experimental Physics (ITEP), and half-dozen courses (on aspects of rocket science) of the so-called military education which was also madatory. I should add that the notion of electives was virtually nonexistent; with one or two exceptions all the above discuiplines were mandatory. The minimal course duration was one semester, but sometimes they lasted for two or three semesters. The classes would start at 9 am and would typically last till 6 pm, with a short lunch break, six days a week. We had quite extensive home assignements. Beginning from the fourth year the classes were gradually phased out in favor of the laboratory and research work. The last (sixth) year was dedicated exclusively to research and preparing diploma thesis. [e] At that time I saw nothing extraordinary in the pace the scientific knowledge was fed up to us; in the absence of other experiences no comparison could be made.

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But I am running ahead of myself. I am not there yet, two more years to go... My last two years at high school were among the best of my life. My parents screened me off from all everyday life difficulties. Whatever problems they might have encountered (and I am sure, they had), I was not supposed to know. Life seemed cloudless. There was a couple of talented teachers at my school who got me involved in various engaging activities related to history, literature and arts. Physics and mathematics competions at various levels were a part of the Soviet routine. I participated in many—some of them quite prestigious—with a certain success. Preparations, a continuous process, were as captivating as the competitions themselves. There were many study groups which sprung here and there, like mushrooms after a good rain; they attracted enthusiastic boys of my age from all over Moscow (girls were rare). Very soon I got to know almost all of them.

In my own school, I had quite a few close friends. The group of seemingly like-minded young men to which I belonged was an active core of the class, setting the social climate. In this environment my life

[e] I guess, it was equivalent to Master's degree in the US universities. In my time there was no intermediate Bachelor degree; now they made an adjustment to better fit into the global system. The Bachelor degree is awarded after the fourth year.

was interesting and intellectually challenging. The classes were over by two o'clock, but usually we would go for a walk or stay at school till four indulging in never-ending debates. Our favorite walk trail passed near a small lake in the outskirts of Moscow; there was a small *kiosk* there where we used to buy bread and incredible pickles. I still remember their taste. Never ever in my adult life could I find pickles so tasty.

We debated everything—from a latest "scandalous" poem in a popular literary magazine, to border conflicts with China, to the future of the socialist society in its competition with capitalism. At that time I did not question the victorious nature of socialism. I was very idealistic, brain-washed and, in a sense, ultrapatriotic. The only thing which bothered me was why this victory was always being delayed. Youthful maximalism was the prevailing mood. Some of my classmates were far more far-sighted (or more informed) than me. Once one of them brought up the topic that there was no distinction between socialism and fascism. I objected. He demanded a proof. I started thinking of counter-arguments. It took me three years to come to the conclusion that there were none.

Later the paths of my classmates strongly diverged. I still keep track of many of them; I could have unfolded here a saga of mostly tragic destinies and wasted lifes, but this is a long story which does not belong here. One of my classmates, by the way, became a pathological anti-Semite. At that time, however, it seemed to me that our ideals, values, aspirations and goals were similar. Perhaps, they were ... at that time. If somebody asks me is there anything I'd like to change if I could return in the past, in 1965, there is really only one thing which I did not do, of which I later regretted. I wish I had prepared myself better, both physically and psichologically, for the imminent struggle for survival in the gravely sick society.

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In 1966 I successfully passed the entrance examinations at Fiztech. There were two oral examinations (physics and mathematics), three written (physics, mathematics and composition), and a general interview. I would not say they were completely fair. The number of questions I was given at the oral math exam (one question after another)

was well beyond any reasonable limit, so that by the end of the second hour of the examination I was completely exhausted. Luckily, the questions were not of the killer type. I managed to find correct answers in almost all cases. This was my good fortune. In June 1967 the Six-Day War broke out in Israel. The mode of conducting the oral math exam was changed—they switched to the common practice of special sets of killer problems for all Jewish applicants, which had been in existence at Mekh-Mat for years. They say, there was a secret instruction to that effect from the Communist Party headquarters. After the Yom Kippur War in 1973 the anti-Israeli hysteria, a perennial theme of the Soviet mass media, reached apotheosis, the last "skrews were tightened," and the barrier at Fiztech became as prohibitive as elsewhere.

An interview was being conducted with all students who had overall grade above a certain "passing mark." The final decision as to the admission or otherwise was supposed to be made on the basis of this interview. (In 1966 they admitted less than 10 percent of the original pull of applicants.) It was customary to suggest general physics questions of the type "why one msut use oil rather than water in the process of frying, say, potatoe?" or "why no live organisms support their life cycles by consuming energy directly from hot water (say, in geysers)?" The successful applicant would then be asked about his/her preferences in particular areas of physics and be assigned to a particular group.

At this point I must explain that the educational process in the Soviet Union was much more rigid than in the Western universities, as I understand it now (at those days I had no slightest idea of the latter and, certainly, could not compare). In the American universities the students are offered a wide spectrum of disciplines, with a relatively few requirements. To a large degree they are free to choose their own curricula. Almost from the very beginning they are left to themselves in their selection of courses they take. The Fiztech students were assigned to particular groups (10 to 20 students in a group) from day one. The groups had individual curricula, different in different groups, tailored to specifically target narrow subfields of physics. They were created by experts in the corresponding areas and were absolutely inflexible. Once you were assigned to group number X you were supposed to follow the

curriculum number X from the beginning to the end, with no detours or distractions. If you did not like the subject, the only way out was to be reassigned to another group. A regular way to do so was to petition at the end of the third year, after passing the "state examination" in general physics. This was the first, and, as a rule, the last opportunity. In general, switching from one group to another was considered to ba a luxury. Authorizations for transfer were granted scantily. For instance, I was wrestling for about two years before I got transferred. If it were not for Berestetskii's interference, I would probably never succeed.

For students of average abilities this system seems to be a blessing. Such students are guided—I would even say, pushed—along a preset railway track by a powerful locomotive designed for them by wise old men. There are no crucial decisions to be made, just follow the track and honestly do what you are told to do. One's smooth advancement is guaranteed. However, for bright students who naturally tend to helter-skelter in search of innovative topics, and like to delve into uncharted waters, this is a heavy burden. The hounding instincts of such students are strongly suppressed. That is why the best and the brightest students are certainly better off in the American system.

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Let me return back to my interview in July 1966. After several questions of the type I have described above, they finally asked: "so, what would you like to do in physics?" "Theoretical physics is my dream!" I proudly answered, adding some particular details and reasons to give more weight to my statement. In hindsight I understand that what I said was complete nonsense. What could a 17-years old boy, with no practical experience, know about career in theoretical physics? I based my judgement on sci-fi novels which I devoured in large amounts at that time. There was also a comic element in this story. A few days before my interview I happened to be near a room where another examination was being conducted. A Fiztech student who passed by me nodded in the direction of a group of several professors in the corner, pointed out one, and wispered, with the utmost esteem: "this is Gorkov." I knew the name and that Gorkov was an outstanding solid state theorist. What stunned me was that he seemed to be so incredi-

bly handsome. I thought: "if there existed a cult to worship phsyicists, with icons and stuff, Gorkov must have been on every icon. That would undoubtedly make everybody worship theoretical phsyicists." I though that if I could join the cult as a faithfull disciple, this might make me more attractive too. (Remember, I am still in the phase when girls pay no attention to me; it was so despessing that I was developing quite a few fantastic scenarios as to how to reverse my fortune.)

Apparenty, the admission committtee captured a theological note in my eulogy to theoretical physics, and in a preemptive strike, they crushed my secret plan right at the start. When I came to Fiztech to inquire about the interview results a few days later, I learned that I was assigned to a group which was supposed to specialize in gas dynamics. My cautious attempt to appeal the ruling led nowhere. The final verdict was: "Take it or leave it. If you do not like gas dynamics you are free to go."

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Surprisingly, looks seem to play quite an important role in the milleu of phsyicists. In 1999, at the Centennial Meeting of the American Physical Society there was an exhibition devoted to the achievements of physics in the 20-th century. It was called something like "A Century of Physics." A huge hall was packed with all sorts of exhibits. One of the posters (I think the one devoted to superconductivity) featured the story of the discovery and displayed, among other pictures, those of Abrikosov and Gorkov. Gorkov's photograph was 30 or 35 years old, a professionally done high quality print. An insightful handsome middle-aged man... Abrikosov's picture was a low-quality scan of a recent amateurish photograph. It was small in size and somewhat out of focus. Apparently, the organizers could find nothing better. At lunch I mentioned this in passing, as a curiosity, to Abrikosov who has not yet seen the exhibition. His reaction was stormy; he got excited, and rushed out of the cafeteria with the following words: "This is scandalous. I have to see it right away, and if this is indeed the case, I will make them to fix it..."

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Here are excerpts from two letters I wrote to my friends. These two

letters are separated by seven years...

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February 1, 1991

I apologize for being silent for a long time. This could be probably explained by a cultural shock I experienced after my arrival to United States. For many years I used to think about this country as of the one that leads the world in all aspects – technological, humanitarian, scientific, cultural, financial, etc. To come here and become a part of them was a dream, something desired and still vague and virtually unrealizable...

I am here now, and I see a lot of things which seem quite unpleasant. Surprisingly, I did not notice them during my previous short term visits to US (I was here twice, in 1988 and 1989). I did not notice neglected or decaying quarters surrounding the downtown skyscrapers, a very sad picture, especially after beautiful fairy-tale of the Swiss towns. I did not notice ugly rusty cars (it is impossible to understand why they do not break right at the spot). I could not foresee that I will be so strongly missing some elements of the everyday Moscow life as well as Swiss landscapes. For instance here, in Minneapolis, I was several times in the theater, three times it was ballet theater, and once it was even a very good ballet group. But the feeling of holiday which I used to have going to the theater in Moscow is lost here. I do not want to say that I was a great theater-goer in Moscow, but it was a great holiday when once or twice a year I was able to get tickets to the ballet performance. In Minneapolis nobody feels like that (at least, I did not notice), the ladies were in jeans, and I was really disappointed.

This is one of the features I do not understand in the American character. It seems to me that they deprive themselves of something valuable in life. The same happened during the Christmas celebration. We were invited to a family which seemed very attractive. I mean I was attracted by this young couple, by their intelligence and energy, and something else which I can not name. We were preparing all the day long. After all, it was our first Christmas in US. Julia and Anya made two beautiful pies – a miracle of the cooking art. They spent about five hours to make the pies. I spent half a day trying to get a really special

vine which I tried only once in France, and Rita was occupied with dresses. She has a refined taste, and, surprisingly (or, may be not so surprisingly) it took her quite a time before she found what she. It goes without saying that we did not forget about the Christmas presents for our friends – each has been chosen after a thorough discussion with all members of the family. To make the long story short it was a *big* event for us.

The first disappointment, not to say more, came immediately after our arrival. The host and the hostess were in clothing for jogging, with some holes here and there, and everything in their small house looked precisely in the same disorder as in any other day of the year. I do not remember now details of the discussion we had while eating the Christmas sandwiches (a little bit of bread, cheese and ham, two bottles of vine – that's it), but it was something about the supremacy of the American educational system over all others. (I will say a few words about this subject later). Nobody even touched the pies prepared by Julia and Anya supposedly because they contained saturated fats, and the girls cried the rest of the night. After this big feast the host suggested playing a game which he borrowed from his 4 years old son.

By no means I complain. After all this would be unfair with respect to the country which gave shelter to us — I mean our family, and the Jewish people in general, the people which is rejected and hated almost everywhere else. And certainly I remember very well the humiliation and terror we lived through in Moscow, year after year. Moscow is a great city, with great culture, excellent schools and beautiful subway. But Moscow is a place where human beings are treated as dogs — even worse, as dust under feet. The human life and dignity costs nothing there...

The reason why I notice all these small and not so important details in America, probably, lies deep inside me, or, perhaps, it is a natural desire to have no drawbacks in the country we are planning to settle in. It would be so nice if the actual life around would be close to the idea of the American life we had in Moscow, a dream of so many people — my friends including — who are still suffering there. I can not understand why Americans make their life less colorful than it could be.

I am sure, I will get used to the new world around me. There are so many good things which I experience for the first time in my life. For instance, being an owner of the car is great! A man in a car lives in one more dimension, no kidding. We bought a used 1985 Honda, and the whole family was playing with it for two weeks like with a beautiful toy – washing it every a day, polishing with wax, changing oil and other stuff, and, of course, driving here and there without any need, actually inventing pretexts to go somewhere by car. To my great surprise, the most passionate driver turned out to be Rita. She started learning how to drive from scratch, and got it immediately — nobody could expect such a lightning success. And now she is a "driving addict." She even says that she would like to become a professional truck driver, and we do not understand whether this is a joke or a serious intention. If before we could hear from time to time that she was missing Moscow and would like to return, now she says — no: "how can I go there if there is no car for me there to drive?"

There was a break of about ten days in writing this letter.

I was too busy to continue it because I had to prepare a course of lecture on the conformal field theory. During these days many tragic events took place, both in Soviet Union and in Israel. The turn of events in Moscow – blood in the streets of Vilnius and Riga – shows that Gorbachev reached his limits, got frightened and decided to turn back, to Stalin days. I feel that this is a great tragedy for all people there, for all my good friends, and I am very nervous about my parents.

Surprisingly, for me personally there was a positive point. My *nostalgia* seems to be almost cured now. I suddenly and clearly understood that nothing can overshadow the terrible fact that the mentality of people there is that of slaves. I was brought up in this poisoned environment, and I am happy now that, perhaps, my children will develop a different type of mentality...

Looking backward in time I ask myself: "What is the biggest achievement of the previous year in our family?" In the scientific aspect the year was not very fruitful for me because I could not concentrate on physics as I used to do years ago in Moscow. There are many friends and colleagues here from Moscow, Leningrad, Novosibirsk and other

cities. Some of them have permanent positions, like me, others are just visitors. And still it is very difficult to get them involved in scientific discussions. Does it mean that we all became old? Or they are simply too nervous because of the events in the Soviet Union?

Still I think it was an important year – we learned how to live in the Western world and not to be afraid of it. We understood that we are equal to all people around, and life again acquired all rainbow colors of which I almost forgot during the last (exceptionally difficult) years in Moscow. We also found good new friends here, in Minneapolis.

After a few days.

I feel that I will never be able to finish this letter. I can continue it indefinitely. If so, it will not be sent. Therefore, this time I will just stop where I stop, and send it.

My most serious concern now is Anya. She experiences a crisis now, and I feel very bad being absolutely helpless. Sometimes she even cries, and says that she is the loneliest girl in the world, and she will never have friends. Obviously her classmates at school tease her or do something bad to her. She never complains directly but still I understood that her academic successes irritate her classmates, not to say more. She is the best student now in her ninth grade, even in English and French (she takes also Hebrew additionally). She loves to study, has an original approach to many subjects, and is very deep. One day she asked me: "Don't you find abnormal that I study so much? I will not do it anymore. I do not want to be a good student. If I only could to be a bad student..." At first she wanted to become precisely as all other American girls in her class as soon as possible thinking that then they will accept her. She bought clothes like theirs, started chewing gum, etc. This did not help and, probably, could not help, because her mentality is different — you can not change this overnight, if at all. I am trying to convince her that she need not force herself and change her perception of the world, that she has a very rich and non-trivial personality, and someday somebody will notice this, and they will become friends....

◇

December 1998

After eight years in America, I finally became the US citizen. This

event has a symbolic meaning. I said farewell to the forty years of my past intertwined with the history of Russia. It does not mean, of course, that I cut off the bond with the Russian culture or with my friends, who are still there. I will belong to this culture forever, no matter what. However, I am no more a part of the official structure, I have nothing to do with one of the most inhuman regimes ever created. I frequently return to the past in my thoughts. Any civilization is well characterized by the words that were borrowed by the world languages from the lexicon of the given civilization. If you think of Russia, in the twentieth century it enriched the world, basically, just with three words — *pogrom*, *gulag*, and *intelligentsiya*. They seem to summarize very concisely what had happened there, the misery of this nation and its grandeur. I must add that I love America, although I certainly see negative sides of the American lifestyle. Most of all, I love it for its tolerance and diversity.

Another summit of the year is the Sakurai Prize for Theoretical Particle Physics I was awarded together with Vainshtein and Zakharov. My friends know that vanity is not one of my defining features, but I must admit that it was damn pleasant to get this news. I am almost fifty, it is the time when one usually starts evaluating one's life – the rest of the road is, probably, downhill. There are not so many things that really count in this evaluation. Children... Of course, I am proud of my daughters. I think there are good reasons to be proud of them. Rita invested her heart and life in our children. Now we enjoy the fruits. Some are not so sweet, though, since there are always problems either with one daughter or with another. Life is life...

The scientific achievements is pure joy. It is great that I can do for living what I really love to do. Some good friends of mine, with the same passion to physics I share, had to quit physics. Financially they are much better off now, but when I meet them it seems to me that their eyes are not as sparkling as they used to be. That's not their fault that there is no place for then in science, that's their misfortune — they were born in a wrong country, that's it.

1998 was the hardest year in my life. Last December I got ill. The pain attacks were excruciating, but doctors could not figure out what

the reason was. As the time was passing, the sophistication of machinery they used for tests was gradually increasing, from the conventional X rays in the very beginning up to the most advanced CAT scans. American doctors are very straightforward. They first tell you the worst case scenario. To make the long story short let me just say that by the end of the year I got two lessons. Both are trivial and are certainly known to wise people. Well, I was not one of them... Thus, truth number one (the most trivial) – medical science is not science, it is not even art. Truth number two – life is very fragile, one should cherish every single day given by God.

This understanding changed my attitudes to many things which would have easily driven me mad previously. For instance, missing the plane because of an unexpected traffic jam on a street where usually not more than 20 cars pass per day, or grossly overspending the monthly budget, or getting from the students mid-term quiz solutions showing that the previous 20 lectures were essentially wasted... Only two years ago each of the above would drive me mad. And now – I just smile ...

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On my remark that with age one naturally slows down one's pace of research, Julius Wess noted that it should be the other way around: one should work faster than one forgets ...